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EXAMINER	
MOORE, IAN N	

ART UNIT	PAPER NUMBER
2616	

DATE MAILED: 11/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/725,438	DAS ET AL.	
	Examiner	Art Unit	
	Ian N. Moore	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 October 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 October 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawing (FIG. 1) was received on 10/10/06. The drawing is accepted by the examiner.

Rejection (1)

Claim Rejections - 35 USC § 102 (e)

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1,2,5,6,11 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Scheibel (US006212240B1).

Regarding Claim 1, Scheibel discloses a method of transmitting data (see FIG. 3, a method executed on a communication device) comprising the steps of:

determining a first data rate (see FIG. 3, step 302; a first modulation rate; see col. 3, line 1-10) based on a measured first channel condition (see col. 3, line 11-17; line 45 to col. 23; in accordance with bandwidth, CRC, sequencing number, and/or quantity of data blocks) at a receiver to which data transmission is intended (see FIG. 1, Receiver 112 of the communication device 107 or 101; see col. 2, line 37-65; see col. 5, line 41-45),

performing a first data transmission at the first data rate (see FIG. 3 step 302, transmit to a target device at a first modulation rate; see col. 5, line 32-46):

receiving a rate indication message (see FIG. 3, step 304, receive Acknowledgment message that indicates to retransmit at second rate; also see FIG. 3, ACK 212) including a data rate-based on a channel condition measurement at the receiver (see FIG. 2, ACK 21 frame header 212, which includes the modulation rate; see col. 4, line 1-12,30-34; see FIG. 3, step 304; the acknowledgement (ACK) frame indicates/shows/demonstrates/represents a first quantity of blocks that were not received according to measured/determined channel conditions/status (i.e. bandwidth, CRC, sequencing number, and/or quantity of data blocks; see col. 3, line 11-17; line 45 to col. 4, line 50) and/or indicate to retransmit at second modulation rate; see col. 5, line 45-53; see col. 3, line 45 to col. 4, line 49);

determining a second data rate (see FIG. 3, step 310, 312; a second modulation rate) based on the received rate indication message (see col. 5, line 47 to col. 6, line 17; determining in accordance with acknowledgement message); and

performing a second data transmission of the data at the second data rate, wherein the second data transmission is a re-transmission of the first data transmission (see FIG. 3, step 312, transmit at a second modulation rate a first group of data block that were not received (i.e. retransmitting); see col. 5, line 65 to col. 6, line 17).

Regarding Claim 2, Scheibel discloses wherein the first and second data transmissions are identical (see FIG. 3, step 312, transmit at a second modulation rate a first group of data block that were not received (i.e. retransmitting); see col. 5, line 65 to col. 6, line 17).

Regarding Claim 5, Scheibel discloses receiving, after the step of determining the first data rate and prior to the step of determining the second data rate, a rate indication message indicating the second data rate for the receiver (see FIG. 3, step 304; indicating a first quantity of

blocks that were not received and indicate to retransmit at second modulation rate; see col. 5, line 45-53; see col. 3, line 45 to col. 4, line 49).

Regarding Claim 6, Scheibel discloses the first data rate is a higher data rate than a data rate indicated in a received indication message (see col. 5, line 50-65; see col. 6, line 45-49; first modulation rate is greater than the second modulation rate).

Regarding Claim 11, Scheibel discloses a method of receiving a data transmission (see FIG. 3, a method executed on a communication device) comprising the steps of:

receiving at a receiver (see FIG. 1, Receiver 112 of the communication device 107 or 101; see col. 2, line 37-65; see col. 5, line 41-45) a first data transmission at a first data rate (see FIG. 3, step 302; a first modulation rate; see col. 3, line 1-10), wherein the first data rate is determined using a measured first channel condition (see col. 3, line 11-17; line 45 to col. 4, line 50; in accordance with measured/determined channel conditions/status (i.e. bandwidth, CRC, sequencing number, and/or quantity of data blocks)); and

transmitting a rate indication message (see FIG. 3, step 304, receive Acknowledgment message that indicates to retransmit at a second modulation rate; also see FIG. 3, ACK 212) if the first data transmission was not successfully received at the receiver (see FIG. 3, step 304; indicates/shows/demonstrates/represents a first quantity of blocks that were not received; see col. 5, line 45-53; see col. 3, line 45 to col. 4, line 49),

wherein the rate indication message includes a data rate based on a channel condition measurement at the receiver (see FIG. 2, ACK 21 frame header 212, which includes the modulation rate; see col. 4, line 1-12,30-34; see FIG. 3, step 304; the acknowledgement (ACK) frame indicates/shows/demonstrates/represents a first quantity of blocks that were not received

according to measured/determined channel conditions/status (i.e. bandwidth, CRC, sequencing number, and/or quantity of data blocks; see col. 3, line 11-17; line 45 to col. 4, line 50) and/or indicate to retransmit at second modulation rate; see col. 5, line 45-53; see col. 3, line 45 to col. 4, line 49); and

receiving a second data transmission at a second data rate (see FIG. 3, step 310, 312; a second modulation rate), wherein the second data rate is based on the rate indication message (see FIG. 3, step 312, transmit at a second modulation rate a first group of data block that were not received (i.e. retransmitting); see col. 5, line 65 to col. 6, line 17).

Regarding Claim 12, Scheibel discloses storing the received first data transmission if the first data transmission was not successfully received at the receiver (see FIG. 1, memory device 116; see col. 2, line 40-60).

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scheibel in view of Reed (U.S. 4,939,731).

Regarding Claim 4, Scheibel does not explicitly disclose receiving, prior to the step of determining the first data rate, a rate indication message indicating the first data rate for the receiver. However, Reed teaches receiving, prior to the step of determining the first data rate, a rate indication message indicating the first data rate for the receiver (see col. 2, lines 40-51; see col. 4, lines 47 to col. 5, lines 10; receiving ARQ message to change the data rate). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide ARQ method to change the data rate, as taught by Reed in the system of

Scheibel, so that it would provide telecommunication system which is reliable and can adapt to changing transmission conditions; see Reed col. 1, line 42-46.

5. Claim 3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scheibel in view of Wang (U.S. 5,838,267).

Regarding Claims 3 and 13, Scheibel teaches transmitted packet may be stored and combined with the retransmitted packet (see FIG. 1, memory device 116; see col. 2, line 40-60). Scheibel does not explicitly disclose soft combining. However, soft combining is well known in the art. In particular, Wang discloses disclose the softcombing (see abstract; see col. 6, lines 26-46). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide soft combining, as taught by Wang, in the system of Scheibel, so that it would provide error detecting and correction system (see Wang col. 2, lines 55-60), significant reduction in the residual error rate and frame erasure rate (see Wang col. 2, lines 26-30), and enable efficient reconstruction of the data packets.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scheibel in view of Corke (US006414938B1).

Regarding Claim 7, Scheibel discloses all limitation as disclose above in claim 1. Scheibel does not explicitly disclose the second data rate is a higher data rate than a data rate indicated in a received rate indication message. However, Corke discloses the second data rate is higher than a data rate indicated (see FIG. 6, step 606 and 608, sending shift rate up message; see col. 6, lines 45-55; the new data rate is higher than the shift up rate in the shift up message). Therefore, it would have been obvious to one having ordinary skill in the art at the time the

invention was made to provide a second/retransmitted data rate higher than the date rate indicated, in the system of Scheibel, so that it would so that it would improve the method of retransmitting data packets in a communication system having variable bit rates; see Corke col. 1, lines 9-10, 55-63.

7. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scheibel in view of Kameda (U.S. 5,940,772).

Regarding Claim 8, Scheibel discloses receiving a single rate indication message indicating the data rate for a single receiver (see FIG. 1, Receiver 112; see col. 2, lines 20-45).

Scheibel does not explicitly discloses receiving, prior to step of determining the first data rate, a plurality of rate indication messages indicating the data rates for a plurality of receivers.

Kameda discloses receiving discloses receiving, prior to step of determining the first data rate, plurality of messages (see FIG. 1, wire transmission signals/messages, rate messages and error control messages; see col. 2, lines 55-62) for a plurality of receivers (see FIG. 1, Radio Base station receivers 4 or Mobile station receivers 5; see col. 2, lines 40-65; see col. 3, lines 1-6, 15-20). Thus, the combined system of Reed and Kameda discloses receiving, prior to step of determining the first data rate, a plurality of rate indication message indicating the data rate for plurality of receivers. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide plurality of receives to receive plurality of messages, as taught by Kameda, in the system of Scheibel, so that it would achieve maximum transmission; see Kameda col. 1, lines 35-39.

Regarding Claim 9, Scheibel discloses selection a receiver to which to transmit data using the received rate indication message (see FIG. 1, Receiver 112; see col. 2, lines 20-45). Kameda discloses selecting a receiver from a plurality of receivers (see FIG. 1, Radio Base station receivers 4 or Mobile station receivers 5; see col. 2, lines 40-65; see col. 3, lines 1-6, 15-20) and sending/receiving plurality of messages (see FIG. 1, wire transmission signals/messages, rate messages and error control messages; see col. 2, lines 55-62). Thus, the combined system of Scheibel and Kameda discloses selecting a receiver from a plurality of receivers to which to transmit data using the received plurality of rate indication messages. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a mechanism of selecting a receiver from plurality of receives to transmit data, as taught by Kameda, in the combined system of Reed and Kameda, so that it would achieve maximum transmission; see Kameda col. 1, lines 35-39.

Regarding Claim 10, Scheibel discloses selecting a receiver, which associated with a rate indication message indicating a data rate (see FIG. 1, Receiver 112; see col. 2, lines 20-45). Kameda discloses the selected a receiver is a receiver associated with a highest data rate (see FIG. 2, 9800 BPS; see col. 3, lines 29-32). Thus, the combined system of Scheibel and Kameda discloses the selected receiver associated with a rate indication message indication a highest data rate. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide associating a selected receiver with a highest data rate, as taught by Kameda, in the combined system of Scheibel and Kameda, so that it would achieve maximum transmission; see Kameda col. 1, lines 35-39.

Rejection (2)

8. Claims 1,2,4,5,11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reed (U.S. 4,939,731) in view of Sayeed (US005828677A).

Regarding Claim 1, Reed discloses a method of transmitting data comprising the steps of:

determining a first data rate based on a measured first channel condition (see col. 2, line 40-51; see col. 4, line 23-25, 50-61; determine the rate in accordance with noise, interference, error, lost, corruption, channel quality, or collision) at a receiver to which data transmission is intended (see FIG. 1,5; recipient/receiver station; see col. 3, line 53-65; see col. 4, line 55-59);

performing a first data transmission at the first data rate (see FIG. 1,5, transmission at a first transmission rate; see col. 2, lines 40-51):

receiving a rate indication message (see FIG. 5, ARQ message) indication a data rate-based on a channel condition measurement at a receiver (see col. 4, line 46-65; see col. 2, line 40-51; see col. 4, line 23-25, 50-61; ARQ indicates/shows/demonstrates/represents changes in baud rate information by indication a request baud rate according to the channel/transmission quality measurement/detect information condition/status (i.e. determine the rate according to error correction and detection for quantitative assessment of the channel such as noise, interference, error, lost, corruption, channel quality, or collision));

determining a second data rate (see FIG. 5, a new data rate indicated by ARQ) based on the received rate indication message (see col. 5, lines 5-10; in accordance with the channel quality factor of transmission; see col. 2, lines 40-51; see col. 4, lines 47 to col. 5, lines 10)

performing a second data transmission of the data at the second data rate (see col. 2, lines 40-51; see col. 4, lines 47 to col. 5, lines 10) wherein the second data transmission is re-transmission of the first data transmission (see col. 2, lines 40-51; see col. 4, lines 47 to col. 5, lines 10; auto-repeat/retransmitting).

Reed does not explicitly disclose message including. However, a rate indication message/hybrid-ARQ/ARQ including a data rate is well known in the art. In particular, Sayeed teaches a rate indicating message (see FIG. 2B,C, E, or F; Hybrid FEC-ARQ message with ½ rate or ¾ rate) including a data rate based on channel condition measurement (see FIG. 2 B, C, E, F message includes C Rate ½ or ¾ according to CRC 16 in the header for channel condition measurement or detected result; see col. 3, line 59-61; see col. 4, line 65 to col. 4, line 10, 45 to col. 5, line 65). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide message including, as taught by Sayeed in the system of Reed, so that it would provide adaptive hybrid ARQ scheme which does not require that the receiver be burdened with such a additional analysis task, and one that does not require additional data be transmitted; see Sayeed col. 2, line 46-65.

Regarding Claim 2, Reed discloses wherein the first and second data transmissions are identical (see col. 2, lines 40-51; see col. 4, lines 47 to col. 5, lines 10).

Regarding Claim 4, Reed discloses receiving, prior to the step of determining the first data rate, a rate indication message indicating the first data rate for the receiver (see col. 2, lines 40-51; see col. 4, lines 47 to col. 5, lines 10).

Regarding Claim 5, Reed discloses receiving, after the step of determining the first data rate and prior to the step of determining the second data rate, a rate indication message indicating

the second data rate for the receiver (see col. 2, lines 40-51; see col. 4, lines 47 to col. 5, lines 10).

Regarding Claim 11, Reed discloses a method of receiving a data transmission comprising the steps of:

receiving at a receiver a first data transmission at a first data rate (see FIG. 1,5; recipient/receiver station; see col. 3, line 53-65; see col. 4, line 55-59), wherein the first data rate is determined using a measured first channel condition (see col. 2, line 40-51; see col. 4, line 23-25, 50-61; determine the rate in accordance with the channel/transmission quality measurement/detect information condition/status (i.e. determine the rate according to error correction and detection for quantitative assessment of the channel such as noise, interference, error, lost, corruption, channel quality, or collision)); and

transmitting a rate indication message (see FIG. 5, ARQ message) if the first data transmission was not successfully received at the receiver (see col. 2, lines 40-51; see col. 4, lines 47 to col. 5, lines 10; when the packet is lost or corrupted); wherein the rate indication message indicates a data rate based on a channel condition measurement at the receiver (see col. 4, line 46-65; ARQ indicates/shows/demonstrates/represents changes in baud rate information by indication a request baud rate according to the channel/transmission quality measurement/detect information condition/status (i.e. determine the rate according to error correction and detection for quantitative assessment of the channel such as noise, interference, error, lost, corruption, channel quality, or collision) and changes in baud rate information by indication a request baud rate);

receiving a second data transmission at a second data rate (see FIG. 5, a new data rate indicated by ARQ), wherein the second data rate is based on the rate indication message (see col. 5, lines 5-10; in accordance with the channel quality factor of transmission; see col. 2, lines 40-51; see col. 4, lines 47 to col. 5, lines 10).

Reed does not explicitly disclose message including. However, a rate indication message/hybrid-ARQ/ARQ including a data rate is well known in the art. In particular, Sayeed teaches a rate indicating message (see FIG. 2B,C, E, or F; Hybrid FEC-ARQ message with ½ rate or ¾ rate) including a data rate based on channel condition measurement (see FIG. 2 B, C, E, F message includes C Rate ½ or ¾ according to CRC 16 in the header for channel condition measurement or detected result; see col. 3, line 59-61; see col. 4, line 65 to col. 4, line 10, 45 to col. 5, line 65). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide message including, as taught by Sayeed in the system of Reed, so that it would provide adaptive hybrid ARQ scheme which does not require that the receiver be burdened with such a additional analysis task, and one that does not require additional data be transmitted; see Sayeed col. 2, line 46-65.

Regarding Claim 12, Reed discloses storing the received first data transmission if the first data transmission was not successfully received at the receiver (see col. 5, lines 39-51).

9. Claim 3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reed in view of Sayeed and further view of Wang (U.S. 5,838,267).

Regarding Claims 3 and 13, Reed teaches transmitted packet may be stored and combined with the retransmitted packet (see col. 5, lines 39-51). Reed does not explicitly

disclose soft combining. However, soft combining is well known in the art. In particular, Wang discloses disclose the softcombing (see abstract; see col. 6, lines 26-46). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide soft combining, as taught by Wang, in the combined system of Reed and Sayeed, so that it would provide error detecting and correction system (see Wang col. 2, lines 55-60), significant reduction in the residual error rate and frame erasure rate (see Wang col. 2, lines 26-30).

10. Claims 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reed in view of Sayeed, and further in view of Corke (US006414938B1).

Regarding Claim 6, Reed discloses that baud rate is decreased on a poor channel after transmission (see col. 5, lines 4-7). Corke discloses the first data rate is higher than a data rate indicated in a received rate indication message (see FIG. 6, step 614 and 616, sending shift rate down message; see col. 6, lines 55-65; since the data rate is shift down from the first data rate, the first data rate must be higher than the shift down rate in the shift down message). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the first data rate higher than shift down rate as taught by Corke, in the combined system of Reed and Sayeed, so that it would improve the method of retransmitting data packets in a communication system having variable bit rates; see Corke col. 1, lines 9-10.

Regarding Claim 7, Reed discloses that the baud rate is increased on a good channel (see col. 5, lines 4-7). Corke discloses the second data rate is higher than a data rate indicated (see FIG. 6, step 606 and 608, sending shift rate up message; see col. 6, lines 45-55; the new data rate is higher than the shift up rate in the shift up message). Therefore, it would have been

obvious to one having ordinary skill in the art at the time the invention was made to set the second data rate higher than indicated rate due to channel quality, in the combined system of Reed and Sayeed, so that it would improve the method of retransmitting data packets in a communication system having variable bit rates; see Corke col. 1, lines 9-10.

Regarding Claim 8, Reed discloses receiving, prior to step of determining the first data rate, a single rate indication message indicating the data rate for a single receiver (see col. 2, lines 40-45). Corke discloses receiving plurality of messages (see FIG. 1, signaling messages; see col. 2, lines 45-50) for a plurality of receivers (see FIG. 1, Radio Base station receivers 104 and 103 or Mobile stations receivers 102; see col. 2, lines 45-50). Thus, the combined system of Reed and Corke discloses receiving, prior to step of determining the first data rate, a plurality rate indication message indicating the data rate for plurality receivers. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide plurality of receives to receive plurality of messages, as taught by Corke, in the combined system of Reed and Sayeed, so that it would improve the method of retransmitting data packets in a communication system having variable bit rates; see Corke col. 1, lines 9-10.

Regarding Claim 9, Reed discloses selection a receiver to which to transmit data using the received rate indication message (see col. 2, lines 40-45). Corke discloses selecting a receiver from a plurality of receivers (see FIG. 1, Radio Base station receivers 104 and 103 or Mobile stations receivers 102; see col. 2, lines 45-50) and sending/receiving plurality of messages see FIG. 1, signaling messages; see col. 2, lines 45-50). Thus, the combined system of Reed and Corke discloses selecting a receiver from a plurality of receivers to which to transmit data using the received plurality of rate indication messages. Therefore, it would have been obvious to one

having ordinary skill in the art at the time the invention was made to provide a mechanism of selecting a receiver from plurality of receives to transmit data, as taught by Corke, in the combined system of Reed and Corke, so that it would improve the method of retransmitting data packets in a communication system having variable bit rates; see Corke col. 1, lines 9-10.

Regarding Claim 10, Reed discloses selecting a receiver, which associated with a rate indication message indicating a highest data rate (see col. 2, lines 40-45). Corke discloses the selected a receiver is a receiver associated with a higher data rate (see col. 4, lines 44-50). Thus, the combined system of Reed, Sayeed and Corke discloses the selected receiver associated with a rate indication message indication a highest data rate. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide associating a selected receiver with a high data rate, as taught by Corke, in the combined system of Reed and Sayeed, so that it would improve the method of retransmitting data packets in a communication system having variable bit rates; see Corke col. 1, lines 9-10, and it would enable the system to select the rout that has the highest throughput.

Rejection (3)

11. Claims 1 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reed (U.S. 4,939,731) in view of Padovani (US006574211B2).

Regarding Claim 1, Reed discloses a method of transmitting data comprising the steps of:

determining a first data rate based on a measured first channel condition (see col. 2, line 40-51; see col. 4, line 23-25, 50-61; determine the rate in accordance with noise, interference,

error, lost, corruption, channel quality, or collision) at a receiver to which data transmission is intended (see FIG. 1,5; recipient/receiver station; see col. 3, line 53-65; see col. 4, line 55-59);

performing a first data transmission at the first data rate (see FIG. 1,5, transmission at a first transmission rate; see col. 2, lines 40-51):

receiving a rate indication message (see FIG. 5, ARQ message) indication a data rate-based on a channel condition measurement at a receiver (see col. 4, line 46-65; see col. 2, line 40-51; see col. 4, line 23-25, 50-61; ARQ indicates/shows/demonstrates/represents changes in baud rate information by indication a request baud rate according to the channel/transmission quality measurement/detect information condition/status (i.e. determine the rate according to error correction and detection for quantitative assessment of the channel such as noise, interference, error, lost, corruption, channel quality, or collision));

determining a second data rate (see FIG. 5, a new data rate indicated by ARQ) based on the received rate indication message (see col. 5, lines 5-10; in accordance with the channel quality factor of transmission; see col. 2, lines 40-51; see col. 4, lines 47 to col. 5, lines 10)

performing a second data transmission of the data at the second data rate (see col. 2, lines 40-51; see col. 4, lines 47 to col. 5, lines 10) wherein the second data transmission is re-transmission of the first data transmission (see col. 2, lines 40-51; see col. 4, lines 47 to col. 5, lines 10; auto-repeat/retransmitting).

Reed does not explicitly disclose message including. However, Padovani teaches a rate indicating message (see FIG. 6,7A, DRC (Data Rate Control) message; see col. 32, line 54 to col. 33, line 10) including a data rate based on channel condition measurement (see col. 20, line 35-67, Rate Table 1; col. 33, line 32-65; DRC carries/includes data rate (according to Table 1) based

upon C/I measurement of link quality (i.e. measured C/I information)). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide message including, as taught by Padovani in the system of Reed, so that it would improve throughput and transmission delay; see Padovani col. 4, line 30-44; col. 5, line 45-56; see col. 32, line 52-60.

Regarding Claim 11, Reed discloses a method of receiving a data transmission comprising the steps of:

receiving at a receiver a first data transmission at a first data rate (see FIG. 1,5; recipient/receiver station; see col. 3, line 53-65; see col. 4, line 55-59), wherein the first data rate is determined using a measured first channel condition (see col. 2, line 40-51; see col. 4, line 23-25, 50-61; determine the rate in accordance with the channel/transmission quality measurement/detect information condition/status (i.e. determine the rate according to error correction and detection for quantitative assessment of the channel such as noise, interference, error, lost, corruption, channel quality, or collision)); and

transmitting a rate indication message (see FIG. 5, ARQ message) if the first data transmission was not successfully received at the receiver (see col. 2, lines 40-51; see col. 4, lines 47 to col. 5, lines 10; when the packet is lost or corrupted); wherein the rate indication message indicates a data rate based on a channel condition measurement at the receiver (see col. 4, line 46-65; ARQ indicates/shows/demonstrates/represents changes in baud rate information by indication a request baud rate according to the channel/transmission quality measurement/detect information condition/status (i.e. determine the rate according to error correction and detection for quantitative assessment of the channel such as noise, interference, error, lost, corruption,

channel quality, or collision) and changes in baud rate information by indication a request baud rate);

receiving a second data transmission at a second data rate (see FIG. 5, a new data rate indicated by ARQ), wherein the second data rate is based on the rate indication message (see col. 5, lines 5-10; in accordance with the channel quality factor of transmission; see col. 2, lines 40-51; see col. 4, lines 47 to col. 5, lines 10).

Reed does not explicitly disclose message including. However, Padovani teaches a rate indicating message (see FIG. 6,7A, DRC (Data Rate Control) message; see col. 32, line 54 to col. 33, line 10) including a data rate based on channel condition measurement (see col. 20, line 35-67, Rate Table 1; col. 33, line 32-65; DRC carries/includes data rate (according to Table 1) based upon C/I measurement of link quality (i.e. measured C/I information)). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide message including, as taught by Padovani in the system of Reed, so that it would improve throughput and transmission delay; see Padovani col. 4, line 30-44; col. 5, line 45-56; see col. 32, line 52-60.

Response to Arguments

12. Applicant's arguments with respect to amended claims 1-13 have been considered but are moot in view of the new ground(s) of rejection.

Regarding claim 1-13 in first set of rejection, the applicant argued that, "...Scheibel fails to teach or suggest receiving a rate indication message including a data rate based on a

channel condition measurement at the receiver...modulation rate is not a data rate based on a channel condition measurement at the receiver..." in page 7-9.

In response to applicant's argument, the examiner respectfully disagrees with the argument above.

Scheibel discloses receiving a rate indication message (**see FIG. 3, step 304, receive Acknowledgment message that indicates to retransmit at second rate; also see FIG. 3, ACK 212**) including a data rate-based on a channel condition measurement (**see FIG. 2, ACK 21 frame header 212, which includes the modulation rate; see col. 4, line 1-12,30-34; see FIG. 3, step 304; the acknowledgement (ACK) frame indicates/shows/demonstrates/represents a first quantity of blocks that were not received according to measured/determined channel conditions/status (i.e. bandwidth, CRC, sequencing number, and/or quantity of data blocks; see col. 3, line 11-17; line 45 to col. 4, line 50) and/or indicate to retransmit at second modulation rate; see col. 5, line 45-53; see col. 3, line 45 to col. 4, line 49**) at the receiver (**see FIG. 1, Receiver 112 of the communication device 107 or 101; see col. 2, line 37-65; see col. 5, line 41-45**).

ACK message header 213 is same a message header 203 (i.e. rate indication message). Scheibel discloses coll. 4, line 30-35 as follows:

> The ACK message header 213 includes the same type of control information as message header 203 and additionally includes an indication of whether a bitmap is included with the message header 213.

ACK header 213 (i.e. header 203) includes a data rate based on a channel condition measurement (i.e. bandwidth, CRC, sequencing number, and/or quantity of data blocks).

Modulation rate is the data rate since the modulation rate is being used to transmit data blocks.

Scheibel discloses in col. 3, line 10-30, 65 to col. 4, line 10, 44-49 as follows:

Upon receiving the transmission, **the target communication device 101 determines whether it received all the data blocks of user data contained in the transmission and whether any received data blocks were corrupted**. Data blocks that were either not received or were improperly received due to corruption are collectively referred to as unreceived data blocks herein. **The target device 101 then transmits an acknowledgment to the sending device 107 via a radio communication resource 104, wherein the acknowledgment indicates a quantity of data blocks that were not received by the target communication device 101.** Preferably, the acknowledgment also identifies which of the transmitted data blocks were not received by the target communication device 101. The receiver 112 then receives the acknowledgment from the target communication device 101.

The processor 114 compares **the quantity indicated by the acknowledgment to a threshold.** When the quantity of unreceived data blocks is less than the threshold, the processor 114 provides a control signal to the transmitter 108 instructing the transmitter 108 to retransmit the unreceived data blocks at a second modulation rate that is less than the first modulation rate. The processor 114 selects the appropriate modulation rate from a table of modulation rates stored in the memory device 116. The transmitter 108 then retransmits the unreceived data blocks at a second modulation rate, via communication resource 102, responsive to the control signal. When the quantity of unreceived data blocks is not less than the threshold the unreceived data blocks are retransmitted at the first modulation rate.

...Preferably each of the data blocks 204-207 includes a cyclic redundancy check (CRC) used to determine whether the data block was correctly received at the target communication device. Preferably, the message header 203 comprises control information, related to the data message and the overall data transmission, such as the number of data blocks contained in the message 202, the message type, identification of the sending communication device, identification of the target communication device, a protocol sequencing number for the message 202, **the protocol sequencing number of the last message received from the target communication device, and <u>the modulation rate at which the data blocks 204-207 will be transmitted</u>**.

...ACK message 212 also indicates, although not explicitly, the quantity of data blocks not received. **The quantity of data blocks that were not received can be determined by counting the binary zeros contained in the bitmap of the ACK message 212.** Such a count in the present case results in a quantity of two data blocks not received. (Emphasis added)

Thus, in view of the above it is clear that Scheibel clearly discloses the claimed invention.

Regarding claim 4 in first set of rejection, the applicant argued that, "...Reed likewise fails to teach or suggest receiving a rate indication message including a data rate based

on a channel condition measurement at the receiver... the combination of Scheibel and Reed does not result in the claimed invention and no prima facie case of obviousness has been asserted..." in page 8-9.

In response to applicant's argument, the examiner respectfully disagrees with the argument above since Scheibel has clearly disclosed the claimed invention as set forth in above response, and the rejection is based up the combined system of Scheibel and Reed.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicant's argument that not obvious, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Regarding claim 1-13 in second set of rejection, the applicant argued that, "...Reed fails to teach or suggest receiving a rate indication message including a data rate based on a channel condition measurement at the receiver...Sayeed appears silent with respect to the packet including a data rate based on a channel condition measurement at the receiver ..." in page 10-11.

In response to applicant's argument, the examiner respectfully disagrees with the argument above.

Reed discloses receiving a rate indication message (**see FIG. 5, ARQ message**) indication a data rate-based on a channel condition measurement at a receiver (**see col. 4, line 46-65; see col. 2, line 40-51; see col. 4, line 23-25, 50-61; ARQ indicates/shows/demonstrates/represents changes in baud rate information by indication a request baud rate according to the channel/transmission quality measurement/detect information condition/status (i.e. determine the rate according to error correction and detection for quantitative assessment of the channel such as noise, interference, error, lost, corruption, channel quality, or collision**)). Sayeed teaches a rate indicating message (**see FIG. 2B,C, E, or F; Hybrid FEC-ARQ message with ½ rate or ¾ rate**) including a data rate based on channel condition measurement (**see FIG. 2 B, C, E, F; a message includes C Rate ½ or ¾ according to CRC 16 in the header for channel condition measurement or detected result; see col. 3, line 59-61; see col. 4, line 65 to col. 4, line 10, 45 to col. 5, line 65**). Thus, it is clear that the combined system of Reed and Sayeed discloses the claimed invention.

Reed discloses ARQ packet indicates the baud/data rate according to the measured/detected channel conditions (i.e. error correction and detection for quantitative assessment of the channel) at the receiver. Reed discloses in col. 4, line 45 to col. 5, line 20 as follows:

The use of error correction and detection enables a quantitative assessment of the channel to be made. This information is used by the recipient to request data rate changes and, possible, a channel change. Changes in baud rate are initiated only by the destination station, and signaled in an ARQ packet, FIG. 6. Although the baud rate request is shown in this example in the first codeword following the synchronisation block, the request may be contained in any one of the codewords depicted. **Each forward packet is transmitted at the last**

requested baud rate in a received ARQ packet. Message transmission commences at a predetermined baud rate, which is known to both stations. To maximise throughput, the baud rate is increased on a good (low error) channel and decreased on a poor (high error) channel. The recipient will request a lowering of the data rate automatically if the quality factor of received blocks is consistently less than a predetermined threshold. If with the lowest data transmission rate, the quality factor is consistently less than the threshold value, then a change to another frequency channel will be requested. The change of frequency channel will be requested in the first codeword in a similar manner to baud rate request, and a change will be made to a nominated reserve channel.

For example, traffic transmission may commence at 150 baud but, depending upon prevailing conditions, this can then be changed to 75 baud or 300 baud at the recipient's request. (Emphasis added)

Regarding claim 1 and 11 in third set of rejection, the applicant argued that, "...Reed fails to teach or suggest receiving a rate indication message including a data rate based on a channel condition measurement at the receiver...Padovani does not appear to include a data rate within the DRC message, rather includes a bit pattern or rate index indicating a requested one of a number of predetermined data rates ..." in page 11-12.

In response to applicant's argument, the examiner respectfully disagrees with the argument above.

Reed discloses receiving a rate indication message (**see FIG. 5, ARQ message**) indication a data rate-based on a channel condition measurement at a receiver (**see col. 4, line 46-65; see col. 2, line 40-51; see col. 4, line 23-25, 50-61; ARQ indicates/shows/demonstrates/represents changes in baud rate information by indication a request baud rate according to the channel/transmission quality measurement/detect information condition/status (i.e. determine the rate according to error correction and detection for quantitative assessment of the channel such as noise, interference, error, lost, corruption, channel quality, or collision**)). Padovani teaches a rate indicating message (**see**

FIG. 6,7A, DRC (Data Rate Control) message; see col. 32, line 54 to col. 33, line 10) including a data rate based on channel condition measurement (**see col. 20, line 35-67, Rate Table 1; col. 33, line 32-65; DRC carries/includes data rate (according to Table 1**) based upon C/I measurement of link quality (i.e. measured C/I information)). Thus, it is clear the combined system of Reed and Padovani discloses the claimed invention.

Regarding argument on Padovani bit pattern or rate index in the DRC message, applicant does not any "specific" data rate or format; and thus it is clear that Padovani DRC includes data rate (with a form of bit pattern or rate index) based upon measured C/I link quality anticipates the applicant's broadly claimed "data rate" based upon channel condition. Noted that although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian N. Moore whose telephone number is 571-272-3085. The examiner can normally be reached on 9:00 AM- 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on 571-272-7629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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